



Edgewood Area - Aberdeen Proving Ground, Maryland 21010-5424

U.S. Army Soldier and Biological Chemical Command

M157A2 Smoke Generator Set & M1059/M1059A3 Smoke Generator Carrier – “*THE LYNX*”

Description: The M157A2 Smoke Generator Set (SGS) and M1059/M1059A3 Smoke Generator Carrier (SGC) produce large area visual smoke screens on the move. The M157A2 and M1059/M1059A3 use dual M54A2 Smoke Generators, operating on standard Army fuels, to produce large white clouds of fog oil vapor which defeat visual-range observation and tracking methods, including lasers. The M157A2 can be mounted on an M1037/M1097 HMMWV with the M284A1 Mounting Kit, or on the M1059/M1059A3 SGC (variants of the M113A2/M113A3 Armored Personnel Carrier).



The M54A2 is a pulse jet engine which burns any mid-viscosity fuel (diesel, JP4, JP8, etc.) to vaporize fog oil which recondenses in the atmosphere to produce a thick, white cloud which provides visible obscuration. Each M54A2 is capable of vaporizing 40 gallons of fog oil in a 1-hour mission.



Capabilities:

- Produces 90 minutes of mobile, visual obscuration without refueling
- One platoon (6 systems) can screen a 1 km x 5 km area
- Uses any standard Army fuel (including diesel, JP4, JP8, MOGAS)
- Can operate -25 deg. F. to 120 deg. F. at altitudes up to 8,000 ft.

Status: The M157A2/M1059A3 was Type Classified Standard, logistics control code A on 15 Dec 94. A production contract was awarded to the Minowitz Manufacturing, Co., Rosedale, MI, on 29 Mar 96. This contract was awarded on a Best Value basis using the Performance Specification as the guiding technical documentation. Production was completed in Mar 99. Fielding of new systems was completed in Sep 98. All previously fielded M157 SGS will be upgraded to the M157A2 configuration through Modification Work Order (MWO). The MWO effort is scheduled for completion in FY01.

History: The M157 Smoke Generator Set was originally fielded in 1986 and provided the Army with its first mobile smoke generator capability. A total of 323 M157 SGSs and 276 M1059 SGCs were fielded.



In 1991, the Army began an improvement program to improve the reliability of the system. The M157A1 was type classified standard, logistics code A on 8 Oct 93, but was never fielded. Improvements included in the A1 include fuel filter/water separator assemblies to protect the fuel pump; simplified fuel can lid assemblies; elimination of expensive quick-disconnects; improved high altitude engine head/fuel nozzle/oil orifice; new engine head wrench; smaller control panel; elimination of hot control panel concerns; repositioning of the control panel in the HMMWV to prevent interference with the SINCGARS radio; improved and less expensive fire detection system; fuel pump and fog oil pump circuit breakers; and relocated and simplified fog oil pump assembly.

In Oct 93, a Materiel Change was initiated to comply with DOD Directive 4140.43 on fuel standardization. The result of this Materiel Change, the M157A2 SGS, utilizes an innovative new method for igniting and burning mid-viscosity fuels (Diesel, JP8, etc.) in a pulse jet engine. The PM Smoke personnel who developed this new method were awarded a patent on 9 Sep 97 entitled "Multifuel Combustion Engine and Use In Generating Obscurant Smoke" (U.S. Patent #5,665,272).

Modernization Through Spares (MTS):

PM-ODS has been aggressively updating fielded systems through an MTS strategy. Improvements identified during the M157A1/A2 development and production efforts have been stocked for the original M157 SGS, resulting in decreased O&S costs and extending the serviceable life. These new parts have been incorporated using the NSNs of the replaced parts, thereby requiring no change in requisitions.

The MTS initiatives are being incorporated into the Technical Manuals (TMs). The M157A2 SGS TMs have been updated to contain all improvements to the system. PS Magazine articles describing changes have been published and additional articles will be developed as new issues arise.



For additional information, please contact Product Manager-Obscuration and Decontamination Systems, ATTN: AMSSB-PM-RNN-O, Aberdeen Proving Ground, MD 21010-5424. The Product Manager can also be contacted by E-mail (pm.ods@sbccom.apgea.army.mil), by telephone at (410) 436-2804 or DSN 584-2804, or by fax to (410) 436-8803.